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Master in Photonics – “PHOTONICS BCN” ERASMUS+ “EUROPHOTONICS”

MASTER THESIS PROPOSAL

Dates: April - September 2020

Laboratory: ICCUB-Institute of Cosmos Sciences

Institution: U. Barcelona

City, Country: Barcelona, Spain

Title of the master thesis: Entangled photon apparatus for quantum technology popularisation

Name of the master thesis supervisor: Jose Maria Gomez Cama / David Gascon / Bruno Julia Diaz

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Keywords: Entangled photons, single photon detectors

Summary of the subject (maximum 1 page):

Entanglement is a fantastic quantum resource which is the key ingredient of all the currently developed quantum technologies. It seems thus of capital importance to approach this important concept to our society by well-developed and high-quality science popularisation experiments.

In this TFM, we will produce an entangled photon apparatus following a proposal, replicated in many laboratories around the world, described in [1]. The project will be carried out at the Technological unit of the ICCUB, which has a long time expertise in international collaborations like LHCb, Gaia, Solar Orbiter or CTA. In particular, the group has worked extensively with single photon detectors which should help in the design of the entangled photon apparatus.

The final goal would be to have the apparatus ready to be presented in Science Popularisation fairs, such as Yomo2021 and others.

[1]Dehlinger y Mitchell, Am J. Phys. 70 (9) (2002).

Additional information:



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* Required skills: Some knowledge of electronics, instrumentation and software (data acquisition and processing). Basic background on quantum physics and optoelectronics.

* Miscellaneous: